DOCUMENT RESUME

ED 086 512 SE 017 085

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TITLE An Environmental Glossary for Environmental Educators.
INSTITUTION Illinois State Board of Vocational Education and Rehabilitation, Springfield. Div. of Vocational and Technical Education.; Southern Illinois Univ., Carbondale. Dept. of Agricultural Industries.; Southern Illinois Univ., Carbondale. School of Agriculture.
PUB DATE 73
NOTE 35p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Definitions; *Dictionaries; *Environmental Education; *Glossaries; Instructional Materials; Vocabulary; *Vocational Education

ABSTRACT

This dictionary contains over 300 of the most commonly used environmental terms. In addition, it includes occupational definitions for vocational education. A related document is SE 017 084. (LS)

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AN ENVIRONMENTAL GLOSSARY FOR ENVIRONMENTAL EDUCATORS

THOMAS R. STITT

SE 017 085

FOREWORD

During the past year, the Professional and Curriculum Development Unit, Division of Vocational and Technical Education for the Board of Vocational Education and Rehabilitation, in cooperation with the Department of Agricultural Industries, School of Agriculture, Southern Illinois University, Carbondale, has funded two environmentallly related projects.

1. Pre-Service Program in Environmental Education, Program Phase, Project Number MP-3a September 1, 1972 to June 30, 1973.

2. Pre-Service Program in Environmental Education, Training Phase, Project Number MP-3b-0P5a. September 1, 1972 to August 31, 1973.

The projects operated simultaneously with two major objectives.

1. Develop a program for training students in one of the vocational majors in the field of Environmental Education.

2. In the time available, provide the participants with as much exposure to the proposed program as possible.

As the project developed, the participants began to collect information which they deemed valuable to the prospective teacher in the areas related to "Environment".

Publications include:

a. An Environmental Glossary.

b. An Annotated Bibliography for Environmental Educators.

c. A Preview of Audio-Visual Materials Related to the Environment.

d. Employment Opportunities and Job Analysis for Selected Environmental Occupations.

e. A Pre-Service Program in Environmental Occupations.

These materials are specifically designed to serve as resource materials for Vocational Teachers who are teaching in Environmental Areas.

Thomas R. Stitt.

Thomas R. Stitt
Project Director
Agricultural Industries
Department

PROJECT INFORMATION SHEET

Project Title:

Pre-Service Program in Environmental Occupations, Program Phase, Contract Number MP-3a.

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Funding Agent:

Professional and Curriculum Development Unit,
Division of Vocational and Technical Education
Board of Vocational Education and Rehabilitation,
State of Illinois in cooperation with Agricultural
Industries Department, School of Agriculture,
Southern Illinois University, Carbondale, Illinois.

Project Duration:

September, 1972 through August, 1973.

Environmental Glossary

1. Abiogenesis. The production of an organized living entity from nonliving precursors.

2. Abiotic factor. A nonliving feature of the environment.

3. Abrasion. The wearing away of soil.

4. Absorption. The entrance of a chemical into a plant or microorganism.

5. Acclimation. Adaptation to climatic change on the part of an individual.

6. Acclimatization. The adjustment or increase in tolerance shown by a species in the course of several generations in a changed environment.

7. Acre. A measurement of land surface containing 43,560 square feet. This is equal in area to a square approximately 209 feet on a side. Most crops are grown and most farms are managed in terms of acres of land.

8. Activated sludge. Raw sludge containing an abundant supply of living aerobic bacteria.

9. Active ingredients. The actual amount of pesticide present in the formulation. (Ag. Chem.)

10. Adaptation. Means by which an organism adapts itself to changing surroundings.

11. Adsorption. The binding of a chemical to the outside surface of small soil particles (soil colloids) or to plant parts.

12. Aerated lagoon. Mechanically aerated lagoon.

13. Aerobic decomposition. A process of decomposition in which bacteria utilize oxygen in the breakdown of organic matter.

14. Aerobic organism. Any form of life that uses oxygen in respiration.

15. Aerobiology. The study of the transport of organisms, chiefly as spores, by winds.

16. Aerosol. Suspensions of a liquid or solid in air.

17. Aesthetic. Something which is pleasant or beautiful in color, texture, or general appearance. Many people appreciate well-managed fields or forests and the beauty of nature, and promote conservation for this reason.

18. Agriculture. The care and use of soils through production of crops and animals on the farm. Conservation is a part of the agricultural program.

19. Agriculture Stabilization and Conservation. A local subdivision of the Federal Agricultural program which fixes acreage allotments for farm crops and makes payments to farmers for approved conservation practices and improvements.

20. Algae. A broad class of microscopic plants which inhabit water. Although some forms of algae are necessary and desirable, excessive concentrations tend to discolor water and cause objectionable tastes and odors, severely limiting water's recreational uses.

21. Algicide. Any material, substance, or compound which is fatal to algae or inhibits enough growth to be considered a potential means of control.

22. Alien. Introduced plants which have become naturalized.

23. Amensalism. An interaction between members of two species in which one inhibits the other from sharing the same resources in the environment.

24. Amplification, biological. An increase in the concentration of a poison as shown at progressively higher trophic levels.

25. Anaerobic Decomposition. A process of decomposition in which breakdown of organic matter occurs by bacteria without the use of oxygen, resulting in production of hydrogen sulfide and other obnoxious gases.

26. Anaerobic Lagoon. Does not have sufficient oxygen supply to be aerobic.

27. Anaerobic Organism. Any form of life that needs no oxygen for respiration.

28. Annual Weeds. Weeds that live one year and are perpetuated only by seed.

29. Antibiotic Action. An inhibitory effect on living processes in members of one species due to secretions from another species.

30. Antibody. A protective substance produced in the blood of an animal in response to the introduction of a foreign protein (an antigen).

31. Antidotes. A remedy used to counteract the effects of a poison.

32. Area Conservationist. A technically-trained person in problems of soil, water, and conservation, who supervises the personnel of several districts. He is employed by the Soil Conservation Service of the United States Department of Agriculture and assists District Conservationists and Local Soil and Water Conservation Districts in carrying out a sound program of soil and water conservation.

33. Atmosphere. Mixture of several gases which surround the earth. It is essential to plants and animals. Industrial areas have polluted their air to the point where it may be dangerous for man to live there.

34. Autecology. The study of environmental relationships of organisms belonging to a single species.

35. Autotrophic organism. Any form of life whose sources of energy and nutrition are independent of any host, prey or organic matter.

36. Badlands. Areas which are severely eroded, the gullies being relatively close together.

37. Bacteria. A broad class of microscopic one-celled organisms. Bacteria provide a useful function in the decomposition of organic matter. The self-purification potential of streams depends on bacterial action.

38. Barren Land. Land which is unable to produce plant or animal life and is subject to heavy erosion. Some barren land can be made productive by irrigation.

39. Behavioral adaptation. A repetitive bodily action by an organism whereby it avoids or minimizes an environmental stress.

40. Behavioral ecology. The study of the social environmental features of animals as these affect access to resources.

41. Bed Load. Particles carried along the bottom of a stream by the moving water. These particles are generally larger and heavier than the materials carried in suspension by the water.

42. Biennial weeds. Weeds that live for more than one year but not more than two years.

43. Biochemical oxygen demand. (BOD). A measure of waste load represented by the amount of dissolved oxygen utilized in the aerobic decomposition of organic matter in water (usually over a 5-day period). The higher the expressed BOD, the greater is the waste load.

44. Biocidal. Having a lethal effect on a wide spectrum of life, usually the killing of non-target organisms by a pesticide.

45. Biocoenosis. A European term equivalent to the concept of the ecological community.

46. Biodegradable. Is susceptible of being decomposed by bacterial action.

47. Biodegradation. Decomposition of organic compounds through the activity of microbial decomposers, used chiefly regarding synthetic compounds.

48. Biogenesis. The production of new individual organisms through the reproductive activities of pre-existing, parental organisms.

49. Biogeochemical cycle. An endless sequential transfer of a chemical element through the bodies of plants and animals, and return to soil, sea or atmosphere.

50. Biogeography. The study of the geographical distribution of species and of past events that produced these patterns.

51. Biological control. Control of pests by means of living organisms like predators, parasites, and disease-producing organisms.

52. Biological factors. The influence of one plant on another and the influence of animals.

53. Biomass. The quantity of organic substance produced on an area, calculated for a species by multiplying the number of individuals by their average weight.

54. Biome. A major biotic community composed of all the plants and animals including the successional stages of an area.

55. Biosphere. That portion of the world occupied by living organisms, including all of the hydrosphere as well as parts of both the geosphere and atmosphere.

56. Biota. The totality of all plants, animals and microbes in an area or a geological period.

57. Biotic Community. Definite and characteristic assemblages of plants and animals which include all the living members of a particular habitat.

58. Biotic Factors. The results of interrelations of organisms to each other from an ecological viewpoint.

59. Board Foot. The amount of wood in a board 12" x 12" x 1". Lumber and even growing trees are sold by the board foot. Ordinarily the large diameter and tall trees have more board feet in them and are therefore more valuable.

60. BOD - Biochemical oxygen demand. The amount of oxygen required by bacteria while stabilizing decomposable organic matter under aerobic conditions (a measure of pollutional strength of sewage requires five days to incubate).

61. Botulism. A bacterium (Clostridium botulinum, type C) that causes sickness and death of waterfowl. This bacterium thrives best in shallow, stagnant water, especially during hot weather.

62. Browsing Line. Animals, such as deer, eat foliage from trees and bushes as high as they can reach. This leaves a distinct level in many forests which is called a "browsing line."

63. Broadcast Application. Application made uniformly over an entire field.

64. Buffer Species. An alternative food resource used by a predator when its preferred prey becomes less available.

65. Canopy. The horizontal expanse of tree branches bearing foliage.

66. Carcinogen. Any agent capable of inducing abnormal and uncontrolled growth, producing a cancer in a multicellular animal or plant.

67. Carrier. Inert material, such as dusts, clays, oils, water, and air, that provides for more uniform dispersal of the pesticide. (Ag. Chem.)

68. Catch Crop. Crop sown into another crop being grown for harvest. Clover or legumes are often sown into wheat as a catch crop and plowed under before the next season. A catch crop protects the land and improves the soil structure.

69. Chlorinated hydrocarbon insecticide. A synthetic compound that contains hydrogen, carbon, and chlorine. They are persistent insecticides that kill insects mainly by contact action. They are insoluble in water and are decomposed by alkaline materials and high temperatures. Examples: DDT, aldrin, dieldrin, heptachlor, lindane, toxaphene, methoxychlor.

70. Class. A classification level of organisms encompassing one or more orders.

71. Climate. The sum total and general effects of meteorological factors.

72. Climatic factors. All the atmospheric conditions through whose widespread uniformity the character of the regional climate is determined.

73. Climax. A community at a relatively stable condition which is able to reproduce itself indefinitely under existing conditions. The succession leading to a climax represents the process of adjustment to the conditions of stress and the climax represents a condition of relative equilibrium.

74. COD - Chemical oxygen demand. A substitute for BOD; it is quicker to determine.

75. Coliform Bacteria. Bacteria present in large numbers in humans and hence, in sewage. Because coliform bacteria are always present in relatively large numbers in sewage, because they may be detected with comparative ease, and because purification procedures which cause their elimination or destruction are equally effective against pathogens, the routine bacteriological analysis of water is concerned mainly with testing for the coliform group of bacteria.

76. Colloidal Materials. Particles suspended in liquid which are intermediate between true solutions and suspensions.

77. Community. All of the plants and animals in an area.

78. Community Concept. The fact that all the different plants and animals occupying a given area during a particular time have some degree of influence on each other.

79. Community, ecological. The interacting individuals of all species populations in an ecosystem.

80. Community Ecology. The study of the interactions of living components of an ecosystem, centered on biotic rather than abiotic factors.

81. Competition. The general struggle for existence in which the living organisms compete for a limited supply of the necessities of life.

82. Composting. An aerobic method for solid wastes, usually done by turning manure piles.

83. Conservation District. A conservation district which is formed by the voters of a county and which is supported by a tax levied upon the citizens of the county. A director or administrator is employed by the Board for recreational and educational purposes. The Board has authority to acquire land and construct facilities.

84. Conservation Technician. A civil service employee with some background in agriculture who assists the local Soil Conservationist in his work. See: Soil Conservationist, Soil and Water Conservation District.

85. Conservation Tillage. The minimum number of tillage operations necessary to produce a crop. Leaving a crop residue mulch or seeding of cover crops makes conservation tillage an effective practice for erosion control.

86. Contact Herbicides. Herbicides that kill on contact.

87. Control Factor. A factor which responds to an increase in the density of a given species either by increasing the severity of its action against the species (as to natural enemies) or by causing intraspecific competition to decrease the chance of survival of individuals (as does supply of food, habitat, etc.)

88. Contour Farming. Method of working the soil whereby crops are planted on the level,or across the slopes, instead of up and down the slope. Farming on the contour often increases yields and almost always decreases soil loss from erosion.

89. Crop, standing. The biomass that can be supported by the available energy flowing through an ecosystem.

90. Crop Tolerance. The degree or the ability of the crop to be treated with a chemical but not injured.

91. Cycles. The periodic, frequently predictable, fluctuations in abundance of a given species in a particular area over a year or a period of years.

92. Deciduous. A plant, including the trees, which sheds all of its leaves every year at a certain season.

93. Decimating Factors. Factors in the environment that limit animal abundance by direct killing. They include predation, accidents, disease, starvation, and hunting.

94. Deformation. Changes on the surface due to flood or earthquake.

95. Degradable Wastes. Substances which are changed in form and/or reduced in quantity by the biological, chemical, and physical phenomena characteristic of natural waters. Biodegradable is a term specifically referring to decomposition by biological processes.

96. Department of Agriculture. A department of the national government devoted to a study of the problems of agriculture, scientific investigations, encouragement of sound agricultural practice, and the spreading of information of interest to agricultural persons.

97. Depletion. Lowering the fertility of the soil either by erosion, or taking off crops without keeping the soil in condition. Depletion may be prevented by crop rotations and addition of fertilizer.

98. Deprivation, ecological. A reduction in the diversity of environmental challenges, particularly biotic, due to simplification of the ecological community. sensory. A reduction in the diversity of stimuli from the environment to an animal in isolation.

99. Diversion Ditch. A man-made waterway to change the route of running water. Diversion ditches are often used to prevent excessive water from running down slope or causing rapid sheet erosion or gullying.

100. DO - Dissolved Oxygen in water. One of the most important factors for determining the quality of water. Dissolved oxygen is essential for fish and other acquatic life and for aerobic decomposition of organic matter.

101. Dominance. The degree of control of a community by members of one or a few species.
cyclic. A succession in which several stages lead to the reappearance of a species in a position of temporary dominance time after time.
species. The ability of members of one species, through adaptive features, to compete successfully for required environmental resources.

102. Dosage. The amount of pesticide to be applied per given area (like an acre) or per unit of water. (Agricultural Chemical)

103. Drainage Tile. A series of loose fitted clay tiles buried on a determined grade to drain off excessive water from farm land. Drainage tile can be used in permeable soils in place of surface ditches to make farming possible on land which otherwise would be too wet to cultivate.

104. Drift. Movement of material outside the intended area during or shortly after application.

105. Drought, physiological. A relative unavailability of water because of rapid drainage or contamination with toxic materials.

106. Ecoclimate. The actual climate of the individual; the sum total of the meterological factors within a habitat.

107. Ecological Succession. The sequence of events of predictable pattern that occurs in an integrated community, given any particular set of physiographic factors, combined with a certain climate.

108. Ecology. The science of relationships of organisms to environment.

109. Ecosphere. The totality of all ecosystems, hence of all life and the physical environment with which living things interact.

110. Ecosystem. An ecological community and its physical environment of extent such that the cycling of nutrient materials and energy flow from a closed system.

111. Ecosystem Ecology. The study of energy flow and nutrient recycling in a living community, such as a forest ecosystem or an isolated lake.

112. Edge Effect. The distinctive opportunities afforded along the boundary between two plant communities for animals that can feed in one and take shelter in the other.

113. Effluent. 1. Wastes that decrease the quality of water, air or soil; usually pollutants discharge from a sewer, chimney, or ditch.
2. An outflow of water such as from a septic tank or a waste treatment plant.

114. Enrichment. An increase in nutrients, mainly nitrates and phosphates, which fosters growth of algae and other plant life in water.

115. Environment. All of the objects, conditions, and influences surrounding and affecting the life of an organism or group of organisms.

116. Environmental Complex. The combination of biotic and physical factors together constituting the environment in which a plant or animal is living.

117. Environmental Types. The different generalized types of vegetation that are found in an area as a result of differences in climate and soils, disturbance by man, and any other factors that affect the success of individual organisms to differing degrees.

118. Erosion. The removal of soil or rock by wearing away of land surface.

119. Eutrophic. Waters rich in nutrients.

120. Eutrophication. The process of aging of a lake; occurs slowly under natural conditions, but may be greatly accelerated by man's actions - the addition of dissolved nutrients to the waters of an oligotrophic lake, rendering it more able to support rapid growth of plants.

121. Evergreens. (Conifers) Trees which do not shed all their leaves and therefore remain green throughout the year. Evergreens are the source of most of our lumber and usually can be planted and grown on land which has been severely eroded.

122. Evolution. The theory that all species of plants and animals have developed from earlier forms by hereditary transmission of slight genetic variations passed on to later generations.

123. Exotic. Any non-native species; introduced.

124. Factor Interaction. Modification of the effect of one environmental factor by a change in another factor, such as the interaction between wind and humidity.

125. Fallacy of limited decisions. The proposition that there are a limited or fixed number of decisions to be made by society and that if more decisions are made by the public sector, less are necessarily available to the private sector. This proposition is often not true as there are many examples where public policy has increased the options available to the private sector.

126. Farm Forester. A technically trained employee of the State who is available to help land owners in rural areas plan and carry out wise forestry practices.

127. Fertilizer. Manufactured mineral matter or animal waste which will increase the productivity of the soil. The production of any field plus the nutritional value of the crops produced depends upon the kinds and amounts of fertilizer available for the crops.
See: Potash, nitrogen, phosphate, green manure

128. Fish Hatchery. A place where fish eggs are collected and hatched, and the young fish are used to stock or restock ponds.

129. Food Chain. A figure of speech for the dependence for food of organisms upon others in a series beginning with plants or scavenging organisms and ending with the largest carnivores.

130. Flyway. Route followed by migratory birds between their nesting place and their winter homes. There are three major flyways in the United States: along the Pacific and Atlantic Oceans and along the Mississippi River. These flyways provide food, shelter, and water.

131. Food Web. Network of nutritive relationships among members of all ages and all species populations in a community.

132. Forest. Areas where trees find suitable climate, rather than be crowded out by grasses. When man uses wise forest management practices, he will have greater profits from the trees.

133. Forest Litter. The surface layer of the forest floor, in which the leaves are slightly decomposed, leaving a protective covering. It provides humus which increases the water-holding capacity of the soil and general soil conditions.

134. Forest Service, U.S. An agency of the Department of Agriculture concerned with scientific studies of forestry problems and the management of federal forested areas.

135. Fumigant. A chemical which as a gas kills destructive animals and plants.

136. Fungicide. A chemical used to kill fungi.

137. Game. Wild animals, birds, and fish that are hunted for food sport. Game needs proper living conditions and other protection if it is to survive.
See Habitat, wildlife refuge

138. Game Birds. Birds which are hunted for food and sport. Hunting is part of the American tradition. Education, legislation, and proper wildlife management are necessary to maintain this resource.

139. Game Refuge. A natural gathering area for wildlife where they find food, water, and shelter. Wildlife refuges are often used as controlled hunting areas during certain seasons.

140. Genus. A level of classification between a family and species.

141. Geology. The science dealing with the structure of the earth's crust and the formation of the crust's various layers.

142. Geosphere. The earth.

143. Grade. The natural slope of ground or man-constructed slopes, such as inroads and waterways.

144. Grass Waterways. The channel in which water is allowed to run off the land. It is protected from excessive water damage by a heavy cover of grass. Grass waterways are constructed to carry excess water run-off safely on sloping land and minimize erosion damage.

145. Greenhouse Effect. The retention of heat in and below the earth's atmosphere due to absorption of longwave radiations traveling toward outer space.

146. Ground Water. Atmosphere water which soaks into the ground. Below the water table, all the pore spaces in the ground are filled with water and the ground is said to be saturated. Ground water is the source for springs and wells.

147. Gully. A steep-sided channel cut in the surface of the earth, caused by concentration of moving water. Water usually flows in a gully only during and after a rain or with the melting of snow. Gullies which cause great soil losses sometimes can be corrected by structures or grass waterways, or prevented by proper land management.
See: Erosion, structure, grass waterways

148. Habitat. The place or environment where a plant or animal species naturally lives and grows.

149. Hardness of water. A condition in which water contains high concentrations of mineral salts which interfere with lathering and cleansing properties of soap and cause incrustation of pipes and other plumbing fixtures.

150. Hardpan. The calcareous deposit that forms a watertight stratum below the soil of many grasslands.

151. Hardwood. A tree of class Angiospermae, the flowering plants, regardless of the hardness of the wood.

152. Hazard. The likelihood that a pesticide will cause harm when used as proposed.

153. Herbaceous Plant. A vascular plant that dies down to the ground level at the approach of winter.

154. Herbicide. A chemical used to kill or inhibit plant growth.

155. Herbivore. An animal that eats primarily foods of vegetable origin.

156. Homogeneity. Regularity in distribution of individuals of each species in an area.

157. Human Ecology. The study of environmental factors affecting the welfare of mankind, as a special form of autecology.

158. Humus. The dark rich part of the earth formed by the decay of roots, stems, and leaves of plants, as well as the decay of animal matter.

159. Hydrologic Cycle. The repeated movement of water by solar evaporation into dispersing winds, followed by precipitation and return to the sea.

160. Hydroponics. The growing of plants in a liquid solution that contains the necessary minerals used for plant food. Heavy population pressure and little available productive soil may make us more dependent upon hydroponic farming in the future.

161. Impervious Soil. A soil which has little or no open pore space and so restricts the movement of air, water, and sometimes roots.

162. Incineration. Burning until only ashes (fixed solids) remain.

163. Influent. An organism which has important relations in the biotic balance and interaction.

164. Illinois Natural History Survey. The branch of the Illinois state government responsible for research into the identification, ecology, and management of wild plants and animals.

165. Inertia, thermal. A characteristic of water, which can absorb or release large amounts of heat without great change in temperature.

166. Inorganic Matter. Compounds that do not contain carbon and hydrogen.

167. Irrigation. The practice of applying water artificially to land inadequately supplied with rainfall. Some land which was formerly barren can be made productive by this practice.

168. Insecticide. A chemical used to kill insects.

169. Insoluble Compounds. Compounds that will not dissolve in water.

170. Intangible Costs and Benefits. Costs and benefits which are not established through the price and market system. "Non-market" is sometimes preferred to the term "intangible." The loss of game fish through pollution is an example of an intangible cost. Boating and other recreational activities are examples of intangible benefits associated with water resources.

171. Interdependence. Man, all other living things, and the physical elements of the earth are all highly interrelated. Whatever affects one thing in nature generally affects many other things as well. Conservation measures help nature keep a favorable balance.

172. Law of the Inoptimum. No species encounters in any habitat the optimum conditions for all of its functions.

173. Law of the Minimum. The growth of an organism is limited by whatever nutrient material is available to it in minimum quantity.

174. Law of the Optimum. An organism finds its most suitable habitat where its tolerances are least under stress by the many factors of the environment.

175. Leaching. The movement of soil minerals downward through the soil water. Plant food is removed by leaching and must be replaced in order that plants may have the minerals essential for growth.

176. Leaves. Green parts that grow on the stems of plants and aid in the manufacturing of plant food. They slow down rainfall, help hold moisture, and add to the richness of the soil. Leaves supply materials to make humus in the soil.

177. Lethal Limit. An extreme environmental condition that causes death to organisms continually exposed to it.

178. Life Form. All features of form and structure by which a plant is adapted to cope with various conditions of environment.

179. Limestone. A rock with a great amount of magnesium carbonate or calcium carbonate which can be grouped up for application on the land to make it more "sweet." Limestone is necessary on acid soils for growing legumes and for good bone structure in animals. Milk, and often dairy products, are rich in calcium and are food for human development.

180. Limiting Factors. Environmental factors that far outweigh other factors in restricting normal increase of a species.

181. Limnology. The study of ecological aspects of freshwater systems.

182. Living Fence. A fence made of growing plants, such as multiflora rose or osage orange. Living fences provide food and shelter for wildlife.

183. Logistic Curve. A graphical representation of change in population size, due first to unrestricted reproduction and then restriction by environmental factors.

184. Loess. A fine soil parent material deposited by the wind. Much loess is of glacial origin.

185. Manipulation. The skillful handling or management of something.

186. Manure. A fertilizer--especially animal waste from stables and barnyards. A green manure crop consists of green plants, such as clover, which are plowed under to furnish plant nutrients in soil.

187. Matrix. Anything that provides spacing and continuity to a system, as a framework.

188. Microclimate. The combination of temperature, moisture supply, and other environmental conditions in the space around an organism.

189. Microhabitat. That portion of the physical environment actually inhabited by the members of a species populution, excluding adjacent areas that are not used.

190. Micronutrient. A dissolved substance required in only trace amounts for normal growth.

191. Migratory Birds. Birds which move periodically from place to place, generally with the seasons in order to reproduce and have sufficient food and shelter.

192. Migratory Wildlife. Birds, and some other animals, which, in regular pattern, move from one place to another for food, shelter, and breeding. Wildlife generally needs some protection from human and other predators when migrating from one place to another.

193. Minerals. Naturally occurring inorganic substances having definite physical and chemical properties. Minerals from the soil are taken by humans when they eat plant food or animal products. They must be replaced if the soil is to remain highly fertile. Some minerals are also important for the resource base in our economy.

194. Native. Indigenous; endemic.

195. Natural Resources. All naturally occurring sources of energy and materials used by man, such as soil, water, plants, animals, and even man himself.

196. Natural Selection. The basic process of evolution which results in the survival of the fittest and elimination of those individuals less well adapted to a given environment.

197. Niche. The habitat occupied by a plant or animal as a result of its particular structural adaptations, physiological adjustments, and behavioral patterns acquired during the evolution and development of the organism.

198. Nitrification. The progressive oxidation by soil microbes of compounds containing nitrogen, such as ammonia, to nitrates and nitrites.

199. Nitrogen. A plant food which tends primarily to encourage aboveground vegetative growth. It is a colorless, odorless gas found in abundance in the atmosphere but rarely in the soil. Plants, other than legumes, cannot use pure nitrogen. It improves the quality of plants, giving leaves a deep green color, and it increases plumpness of grain. Pure nitrogen must be combined with other elements, such as oxygen or hydrogen, before it can be put into fertilizer.

200. Nitrogen-fixation. The incorporation of dissolved nitrogen into nitrogenous compounds, such as is known to occur in certain blue-green algae, bacteria and fungi.

201. Nondegradable Wastes. Substances that are not changed in form and/or reduced in quantity by the biological, chemical, and physical phenomena characteristic of natural waters. Although nondegradable wastes may be diluted by receiving water, they are not reduced in quantity.

202. Noxious. Very harmful; poisonous.

203. Order. A level in classification below a class and above a family.

204. Organic Matter. Compounds which contain both carbon and hydrogen. Organic substances are the chief constituents of living things although many organic compounds can be synthesized.

205. Organism. Any living animal or plant, anything capable of carrying on life processes.

206. Outdoor Education. Experience outside the school building planned to provide an application of all the five senses in learning, arouse curiosity, stimulate investigative techniques, aid in perceptual learning, and create a desire to learn.

207. Overturn, lake. A seasonal mixing of waters, obliterating stratification temporarily, when the temperature reaches that corresponding to the maximum density of water.

208. Oxidation Ditch. An aerobic treatment method consisting of a continuous channel and a rotor for circulating and aerating wastes.

209. Oxidation Pond. Naturally aerated lagoon by action of wind, air, and sun.

210. Oxygen Deficit. The difference between observed oxygen concentrations and the amount that would be present at 100 percent saturation.

211. Parasite. A plant or animal which lives by attaching itself to another plant or animal, thus obtaining its livelihood. Many parasites, such as mistletoe, ticks, bittersweet, do considerable damage in our forests and to our wildlife before man is aware of their presence.

212. pH. A technical measure of acidity or alkalinity. A pH of 7 is neutral, over 7 is alkaline, and under 7 is acidic.

213. Phosphate. A mineral plant food which may be removed from soil by erosion or plant growth. Man must replace the phosphate in order that plants can make proper growth.

214. Phosphorous. An essential element which controls cell division and the formation of fat and albumen. Flowering and fruiting or formation of seeds depends upon its availability. It encourages root development, speeds maturity, and counteracts excess nitrogen in plant growth.

215. Physical Drought. A condition in which soil contains very little available water.

216. Physiological Ecology. The study of adaptive features and adjustments in the functions of organisms responding to changes in environmental conditions.

217. Phosphate. A salt or ester of an acid containing phosphorous. They are necessary to the growth of plants and animals.

218. Photosynthetic Activity. The use of carbon dioxide, water, and other materials by plants in the presence of sunlight (radiant energy) to form starches and other chemicals useful to the plant. The waste product is oxygen.

219. Plane. The level erosion surface produced in the ultimate stage of any geologic cycle.

220. Pollutants. A polluting agent or medium.

221. Pollution. Waste materials in a watercourse which adversely affect water for any particular use, including aesthetics.

222. Population Ecology. The study of reactions in species populations to environmental conditions.

223. Populations. Any group of particular organisms occupying a specific place at any given time.

224. Potash. (Potassium) A plant food which gives vigor and stem strength to plants by increasing resistance to diseases, encourages root system development, and exerts a balancing effect to nitrogen and phosphorus. It is very necessary for chlorophyll development. Potash is mined from deposits of potash salts found in many places on the earth.

225. Predator. Any animal which lives by preying upon other animals. Predators are essential to maintaining a desirable balance of natural wildlife.

226. Predator Control. The act of limiting the abundance of animals that kill too many valuable prey species. The trapping of coyotes in a sheep-ranching area is an example.

227. Prey Species. Species that are preyed upon and become the food of predators. Mice are the prey of many hawks.

228. Primary Treatment. Treatment of sewage to the extent that the heavier solids and flotable materials are settled out.

229. Private Goods. Goods purchased by individuals through the price and market system which yield benefits primarily to the purchaser.

230. Producer. An organism that synthesizes from inorganic materials a number of organic compounds containing recoverable energy; chiefly green plants engaged in photosynthesis.

231. Productivity, ecosystem. A quantitative measure of the rate of production of new biomass or of energy storage at any stage in an ecosystem.
photosynthetic. A measure of the solar energy trapped by a green plant.

232. Public Goods. Goods which are not readily available through the price and market system and which yield widespread benefits to society. Public goods are normally financed by taxes and other sources of public revenue and benefits are not limited to those who finance these goods. Waste treatment facilities and sewer systems are examples of public goods.

233. Radiation, adaptive. The divergence in body function and form among related organisms that have evolved these features in relation to their ecological niches.

234. Range Management. The wide and scientific control of farm and grazing practices on grazing land so that a maximum return will be had for the greatest length of time.

235. Reaeration. The absorption of oxygen in water from the atmosphere. This phenomenon enables self-purification of streams by providing the necessary oxygen to bacteria.

236. Realm, biogeographic. A subdivision of continental scope made distinctive by its endemic orders, families and genera of living things.

237. Recycling. The natural or man-controlled reconstitution of chemical materials into a form that can be reused.

238. Refuse. Useless stuff; waste.

239. Renewable Resource. Any form of life from the population of which a regular harvest can be taken repeatedly without endangering the breeding stock; sometimes used also of soil and other products of living communities.

240. Resistance, environmental. The totality of ecological interactions that ordinarily limit any continued rise in a species population to the carrying capacity.

241. Respiration. Absorption of oxygen and the giving off of products formed by oxidation in the tissues, specifically carbon dioxide.

242. Rill. A tiny channel caused by running water which could start in a small depression and develop into a gully. Rill erosion can remove much of the surface of a sloping field with a single heavy downfall.

243. Rill Erosion. The development of small, shallow channels in the surface of the earth by water erosion.

244. Runoff Water. Water in the hydrologic cycle that returns to the ocean from the land by way of exposed rivers and lakes.

245. Secondary Treatment. Treatment of wastes beyond the primary stage, utilizing biological processes, to the extent that a portion of the remaining organic matter is decomposed before discharge of the effluent.

246. Selection, natural. The elimination of individuals in a population under stress in proportion to their intolerance for the particular stress.

247. Self-purification. The process by which a stream is purified some time after receiving a waste discharge. This occurs in the decomposition of organic matter by oxygen-using bacteria.

248. Septic. The grossly polluted portions of a stream in which the decomposition of organic matters is progressing actively, producing an abundance of CO_2 and nitrogenous decomposition products to the exclusion of the dissolved oxygen.

249. Septic Conditions. A term sometimes used to refer to conditions where dissolved oxygen is absent and decomposition is occurring anaerobically.

250. Sewage. Liquid wastes containing organic and inorganic solids.

251. Sewerage. A system for collecting, transporting, and pumping sewage.

252. Sheet Erosion. The erosion or carrying away of a fairly uniform layer of soil by water. Sheet erosion reduces the level of the whole field and so is not as noticeable as gullying. Strip cropping and contour farming can greatly reduce damage from sheet erosion.

253. Shelter Belt. A planting of trees and shrubs on the windward side of a field to decrease the wind's velocity and prevent wind erosion and other wind damage. Shelter belts are used mainly in semi-arid regions. Frequently, they furnish homes for wildlife.

254. Slope. "The lay of the land" or the rise and fall of the earth's surface in a given horizontal distance. The percentage of slope is determined by the number of feet of rise or fall in one hundred horizontal feet. Slope is extremely important in determining all conservation measures needed for proper land use.

255. Sludge. Accumulations of settleable solids. Their measure determines the need for settling basins.

256. Smog. A combination of smoke and fog in the air.

257. Social Costs. Costs which are incurred by an individual or group but imposed on society as a whole.

258. Sod. A dense growth of grasses with a tight root system which protects the soil from water and wind erosion. Sod pastures can be reconditioned with fertilizer applications.

259. Soil. Usually weathered rock particles combined with decayed plant and animal matter, living organisms, air, and moisture. Some soils, such as peat and muck, are termed organic soil and are composed principally of decayed plants and animal matter.

260. Soil Conservationist. A technically trained person in problems of soil and water conservation. He is available to help farmers in an organized Soil and Water Conservation District with their problems. A Soil Conservationist is employed by the United States Soil Conservation Service, but works with the local Soil and Water Conservation District Board.

261. Soil Conservation District. A locally controlled area organized under State law to promote sound conservation, soil and water practices, and proper land use.

262. Soil and Water Conservation District Board. The controlling officers of a soil and water conservation district, elected by the members of the district to supervise the soil and water conservation program within the district. Most soil and water conservation districts are legally created by the State government.

263. Soil Type. A further subdivision of soil series based on the surface texture. For example, a silt loam and a clay loam could both be part of a soil series called by a specific name, such as "Drummer" or "Miami."

264. Specialized. Adapted to special, specific, or particular conditions, as a bird's wings are adapted for flight.

265. Species. A single, distinct group of plants or animals in which the individuals interbreed among themselves, but not with other organisms. To illustrate, starlings are often seen with gracklers, but both birds are distinct and separate.

266. Speciation. The evolution of species through genetic isolation, establishment of a distinctive ecological niche, and natural selection of adaptive features.

267. Species. A "kind" of organism, implying interfertility in sexual reproduction, geographic continuity in the recent past or present and common ancestry.

268. Stenothermal. Tolerance of only a narrow range of change in temperature, without specifying where this range of temperature falls on the scale.

269. Stocking. To release live fishes into a pond or stream.

270. Stratification. The aggregation of members of particular species into one horizontal layer in a vertical sequence in an aquatic environment, the soil, or among terrestrial vegetation.

271. Stress, physiological. A challenge to the inherited tolerances of an organism to environmental changes, such as in temperature, water supply or salinity.

272. Subsoil. The layer of soil which develops beneath the surface where the natural processes of water movement and soil formation result in an accumulation of finer soil particles. Subsoil affects the permeability and water-holding capacity of the land.

273. Succession, ecological. The progressive change in the species composing the ecological community from colonization through seral stages to climax.
primary. Successional changes following exposure of new land area, as by landslide or glacier retreat or lava flow, where no organic matter is present.
secondary. Successional changes following abandonment of a farm or other area in which soil is present, with humus and soil organisms.

274. Surfactant. The ingredient that changes the surface property of water, soil, and fabric so that dirt can be more easily removed.

275. Survival Potential. The degree of environmental resistance which an organism can endure.

276. Swamp. Any wetland dominated by woody shrubs and trees.

277. Symbiosis. An association of two unrelated species, without indication that members of one species benefit or are harmed by the association.

278. Synthetic Mode. A rational attempt to combine into an understandable scheme all of the available information on a subject.

279. Synecology. The study of interrelationships among all kinds of organisms in an ecosystem in relation to the environment.

280. Systems Ecology. The study of interrelationships among living things and their abiotic environment in operational terms with binary alternatives.

281. Terrace. A ridge of soil built across a slope to keep water from running down and causing erosion. Steeper slopes can be farmed when terraces are used.

282. Tertiary Treatment. Treatment of sewage beyond the secondary stage to accomplish a very high degree of nutrient and/or BOD reduction.

283. Texture. The size and combination of the particles which make up a soil. These particles vary from coarse sand, through silt, to fine clay, and may be mixed together in varying amounts. Loam is a combination of sand, silt, and clay. Clay is.002mm or less in diameter. Silt is .002 - .05mm. Sand is .05 - 2.00 mm. Texture affects how easily a soil will erode, its permeability, and the practices which should be used in growing various crops.

284. Thermal Emission. Radiation and conduction of heat into air.

285. Thermal Pollution. The addition of heat to a lake or stream. An increase in water temperature fosters algal growth, reduces oxygen-holding capacity, and increases the rate of utilization of dissolved oxygen.

286. Timber. Growing trees in a forest, sometimes called "timber." The roots from a good stand of timber are useful in preventing a loss of soil by erosion.

287. Tolerances. The ability to endure and survive different environmental conditions, and the limits of that ability.

288. Top Soil. The uppermost layer of a natural soil profile which contains the greatest amount of humus. Most farm crops are grown in this top soil layer. Unwise practices may destroy or remove this valuable layer.

289. Topography. The surface features of an area, including hills, rivers, lakes, gullies, roads, and so on.

290. Trace Elements. Secondary soil components essential for normal plant or animal growth. Trace elements are recent discoveries and are only partially understood. Some trace elements are barium, boron, cobalt, sodium, chlorin, and chromium.

291. Trichomoniasis. A disease, caused by a one-celled protozoan (Trichomonas gallinae), that infects the mouth, throat, and crop of many species of birds, especially doves and pigeons.

292. Trophic Level. A stratum in the ecological hierarchy of producers, consumers, and decomposers, as shown graphically in a pyramid of biomass or energy.

293. Turbidity. Cloudiness of water caused by presence of collodial matter or finely divided suspended matter.

294. Tundra. An area at high latitude or high altitude where climatic conditions are too severe for upright growth of woody plants.

295. Turnover Rate or Time. A measure of lifespan in terms of the interval between absorption of mineral nutrients by producers and their release by decay.

296. Virus. An infective particle consisting of nucleic acid (DNA or RNA) and protein, capable of inducing a susceptible host cell to synthesize new viruses.

297. Vocational Agriculture. A series of high school courses devoted to training a student for agricultural work.

298. Waste. Disseminules that contribute nothing because they do not survive, and food that is eaten without being digested and absorbed.

299. Watershed. All the area draining into a stream. Water drainage and its problems can generally be solved best by working with all the people in a watershed.

300. Water Table. The top of the uppermost earth layer, found at or below the earth's surface, which is saturated with water. Proper conservation practices will help maintain a favorable water table for plant growth, wells, springs, and lakes.

301. Watershed Organization. Interested persons working cooperatively in a legal organization under State law to investigate, plan, and carry out needed practices for the entire watershed area.

302. Waterway. A natural or man-made course through which water can flow.

303. Welfare Factors. The basic ingredients - food, water, cover, and special requirements (such as minerals)- that are essential to animal life. These factors, if not present in sufficient amounts, indirectly affect animal abundance by reducing breeding rates and weakening resistance against weather, diseases, parasites, and predators.

304. Wildlife. Animals and plants which have not been domesticated by man and which ordinarily require only a small amount of protection to survive and reproduce. Wildlife is necessary for a balance of nature and provides man with a source of food, clothing, and recreation.

305. Wildlife Preserve. An area with food and protective cover where wildlife can rest, feed, and reproduce without being hunted or otherwise molested by man or domesticated animals. These areas may be set aside by private or public (government) groups to maintain or increase wildlife protection.

306. Year-class. All individuals originating in the same annual reproductive season, as a cohort whose mortality can be followed separately.

307. Yield, perpetual. A program of planting and harvesting designed to allow production of a crop each year over an indefinite period with no loss of quality.

Occupational Definitions from the Vocational Education Dictionary

Environmental Health. A broad program of preventive and corrective measures aimed at maintaining a wholesome physical environment for students, faculty, and employees. Such a program ordinarily includes inspection and advisory responsibility, often under medical direction for safety measures related to food, water, air, swimming pools, waste disposal, and radiological hazards.

Occupation. Whatever an adult spends most of his time doing. That may be what he does to earn a living or not. It may be a hobby, or it may refer to duties of one sort or another, paid or unpaid. The occupation is the major focus of a person's activities, and usually his thoughts.

Vocation. Used interchangeably with occupation. The person-centered aspects of work; the psychological conception of work as the behavior of individual persons.

Occupational Guide. A pamphlet covering a single occupation or group of closely related occupations which contains information describing the occupation and labor market information which describes the importance of the occupation in the economy, the industries in which it is important, the current and near future employment prospects, wages, hours, hiring practices, and channels of entry into the occupation.

Occupational Classification. A systematic grouping of jobs according to significant factors involved in the job or group of jobs. The process of determining a title and code number to be assigned to an application or job order. The title or code of a job or group of jobs for which an applicant is qualified, as contained in the D.O.T.

Occupational Career. An orderly sequence of development extending over a period of years and involving progressively more responsible roles within an occupation.

Professional Occupations. Vocations described as professional usually require a high degree of mental activity on the part of the worker and are often concerned with theoretical or practical aspects of often complex and detailed fields. Either require specialized theoretical knowledge or creative talent. Licenses are required for practice in many professions and in addition, professional societies set up membership standards, which tend to define their respective fields.

Management Occupations. Persons employed in these jobs are usually responsible for supervisory tasks of service-oriented occupations as well as some production-focused fields of work. They facilitate the basic work purposes of establishments they represent.

Semiprofessional Occupations. Often supporting occupations which take over much detail work and free the more highly trained professionals for more complicated jobs. The semi-professional is more concerned with the technical or mechanical details of the broader and possibly more theoretical fields. Extensive educational and/or practical experience is required. The jobs are less demanding than the professional fields as regards the background, initiative, or judgment.

Technical Occupations. Occupations which require direct support of engineers or scientists, utilizing theoretical knowledge of fundamental scientific, engineering, mathematical, or draft design principles. Requires practical problem solving in encountered fields of specialization, such as those concerned with development of electronical circuits, application of engineering principles, and application of natural and physical science principles.

Skilled Occupations. An occupation which requires dexterity and competence in a certain area or field. Special training is required for the occupation and a large amount of responsibility and reasoning is needed to perform the tasks.

Semiskilled Occupations. The group includes manual occupations that are characterized by one, or a combination of parts, of the following requirements. The exercise of manipulative ability of high order limited to a fairly well-defined work routine; major reliance, not so much on the worker's judgment or dexterity, but upon vigilance and alertness in situations in which lapses in performance could cause extensive damage to product or equipment; and the exercise of independent judgment to meet variables in the work situation, which is not based on wide knowledge of a work field and with the nature and extent of the judgments limited by application over a relatively narrow work situation or by having important decisions made by others.

Unskilled Occupations. Manual occupations that involve the performance of simple duties that may be learned within a short period of time and that require the exercise of little or no independent previous experience in the specific occupation in question, although a familiarity with the occupational environment may be necessary or very desirable. The occupations in the group vary from those involving a minimum of physical exertion to those characterized by heavy physical work.

Occupational Analysis. The collection, organization, processing, adapting, or issuing of information about the duties, responsibilities, and performance requirements of jobs, and the relationships that exist among the jobs. A systematic method of obtaining information that is focused primarily on the tasks, positions, jobs, occupation industries, and work environment in which persons are found, rather than any study of persons themselves.

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